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WHEAT-GRAINS.

JOHN BOYLE O'REILLY.

As grains from chaff, I sift these worldly rules,
Kernels of wisdom from the husks of schools:

Benevolence befits the wisest mind;
But he who has not studied to be kind,
Who grants for asking, gives without a rule,
Hurts whom he helps, and proves himself a fool.

The wise man is sincere; but he who tries
To be sincere, hap-hazard, is not wise.

Knowledge is gold to him who can discern
That he who loves to know, must love to learn.

Straight-forward speech is very certain good,
But he who has not learned its rule, is rude.

Boldness and firmness, these are virtues each,
Noble in action, excellent in speech.
But he who is bold without considerate skill,
Rashly rebels, and has no law but will;
While he called firm, illiterate and crass,
With mulish stubbornness obstructs the pass.

The mean of soul are sure their faults to gloss,
And find a secret gain in other's loss.

Applause, the bold man wins; respect, the grave;
Some only being *not* modest, think they're brave.

The petty wrong-doer may escape unseen;
But what from sight the moon eclipsed, shall screen?
Superior minds must err in sight of men,
Their eclipse o'er, they rule the world again.

Temptation waits for all and ills will come;
But some go out and ask the devil home.

"I love God," said the saint; God spake above,
"Who loveth me must love those whom I love."
"I scourge myself," the hermit cried; God spake,
"Kindness is prayer, but not a self-made ache."

ENGLISH MATERIALISM IN THE FRENCH REVOLUTION.

E.

"Metaphysics," says Madame de Stael, "may be divided into three classes. The first relates to the mystery of creation; that is to the infinite in all things, the second to the formation of ideas in the human mind; and the third, to the exercise of our faculties, without ascending to the source."

We, with our finite faculties, may not grasp the first; and in the attempt are only shown our own impotence, no other result can be attained. The third pertains to our daily experiences and is narrow in its limits. The second, however, open a broad field for investigation. It is deep, but not unfathomable; the mind is not thrown back with feelings of its own weakness; neither is it limited to experience; but forms a happy medium of meditation and experience. It deals with the nature of our soul and the manner in which our ideas are formed; and, herein lies the power of philosophy, to influence the actions of men, if they believe that all our ideas come from without the attention will be drawn to the external world; if from within they will be turned the internal world or mind. One leads to fatalism, the other to free will. A great crowd of questions arise in the attempt to solve the problem. What is the primitive origin of thought? Are men's actions governed by fatality or free will?

Has man two natures, a spiritual and a material, or only one? And are these derived one from the other, or are they so totally distinct that this is impossible? The answers to these questions must of necessity affect a man's conduct; as he believes so will he act.

Philosophy may be judged in two ways, by its theory, and by its results. Confining ourselves to the last, we wish for a moment to examine the result of materialistic English philosophy upon the French Revolution.

The founder of this philosophy was Francis Bacon; and at that time there was need of directing the attention of men, rapt in religous apathy, to experimental philosophy. Upon his doctrine of sensation as the origin of ideas we find two schools arising: namely, Hobbes, and Locke, who differing in direction, were one in principle. Hobbes accepted the doctrine fully to its final end and boldly declares, "The soul is as much subject to necessity as society to despotism." He had as a consequence but few followers. Not so with Locke, who disguised the harshness of his principles by his religous belief. Separating the theory and the practice, he had an immense following: but Hume and the French philosopners of the following century carried the doctrine to its logical consequences.

Let us examine now the preparation made by the French to receive this doctrine. Louis XIV upon his ascension to the throne of France, commenced a system of protection, 'to encourage,' he said, 'literary enterprise;' but the result was a pampered set of literary courtiers with no independence of thought. During the latter half of his reign, France did not produce a single native born philosopher of any note. So grinding was the oppression of the people that the whole land was a slumbering volcano of discontent. The church had become the laughing-stock of the people through the ignorance and corruptness of the priesthood. Consequently, upon the death of Louis there sprang up a great re-action and the people seized eagerly anything that promised relief from the galling yoke.

Through their dislike of the church they willingly turned from the doctrines of responsibility she taught to those of materialism, who declaring that thoughts are but the result of outward circumstances, did away with man's responsibility for his acts. In fact we find the three main points in this philosophy are, a disbelief in that which cannot, like a mathematical problem, be proven; a contempt for exalted sentiment; and an attachment to the senses. These form from the basis of the scoffing French philosophy of the 18th century. This is the philosophy of Voltaire, Diderot, Montesquieu and Helvetius, that ate into the vitals of French morality and led to the terrible spectacle of the French Revolution. But, you may say, Locke's works were as

deeply read in England as in France, why did not the same state of affairs result there as in France. The reason lies in the difference of religious belief. The English were deeply imbued with religious feeling, the French were not. The English for a centuary before had been accustomed to think and act for themselves on this and all other subjects; the French, by the pampering policy of Louis, were left dependent upon the higher classes; they lacked the self-control of the English, and the sudden reaction carried them beyond all bounds. They had been deeply oppressed; and took deep revenge, aided and abetted by the theory, that men are but puppets in the hands of fate.

EDUCATION.

O. W. K.

From the very birth of intelligence, where first animate matter became conscious, there has been one supreme judge before which has, and must come all the problems of personal and national well-being. The standard of reason.

Magistrates may decide on precedent, but men, as a last resort, give reason the reins and are driven to a conclusion from which there is no appeal.

To this criterion let us bring the mighty problem of education; let us honestly ask and earnestly endeavor to ascertain what things ought we first to know, or what things will be most likely to be of use to us when we are brought face to face with the stern realities of active life.

Herbert Spencer classifies all the activities that go to make up human life, under five heads:

1st. Those activities which go to secure direct preservation.

2nd. Those activities which, by securing the necessities of life indirectly minister to self preservation.

3rd. Those activities which have for their end the rearing and discipline of offspring.

4th. Those activities which are involved in the maintenance of proper political and social relations. And.

5th. Those miscellaneous activities which go to make up the leisure part of life, devoted to the pleasing of fancy and gratification of taste.

Reason, our judge imperial, must tell us that these, standing as they do in their true order of subordination, should be our basis in deciding in what order to pursue study; first, whatever will best enable us to secure self preservation and, last, that which will enable us to gratify taste and please fancy.

Fortunately the all important part of our education, that which goes to secure self preservation, is provided for by our beneficent Godmother, Nature, lest we, in blundering stupidity, should fall short of the requisite skill to guide our frail bark across the dangerous shoals of childhood into the deeper waters of manhood.

So much cannot be said however of our instinct, or natural ability to fulfil the remaining activities that go to make up the full measure of life.

But to return to our question.—What shall we study?

Had we time to master all subjects, we need not be particular.

> "Could man be secure
> That his days would endure
> As of old, for a thousand long years,
> What things might he know!
> What deeds might he do!
> And all without hurry or care."

But life is only a span long. We are in the narrow strait of now, between the mighty seas of past and future; and the tide of time bears us ever onward, ever farther from the coveted goal,—complete education.

Aye, farther; even this small oasis of time in the vast desert of eternity must nearly all be used in other ways than simply acquiring.

Among so many conflicting claims it is almost impossible to decide what things, bearing the relation that we do to society, ought we *first* to know. Still we *must* decide as to the relative values of knowledges.

To this ultimate test, either directly or by implication, must we bring the argument in favor of any course of study: to what extent will it better enable us to perform the duties devolving upon us as men and women?

There is presented to each young student

two distinct and widely different courses of study, the Scientific and the Classical.

The votaries of each present their course as superior; insist and urge, perhaps to an undue degree, that it is the only road to learned greatness. Many great men, truly, have followed each other, and our clearest judgement should be used in deciding where our tents shall be pitched.

If we leave out of the account a comparatively very small class, all men are engaged in the production, preparation and distribution of commodities. For this work then shall we study on the one hand, Greek, Latin and Hebrew, for the mental discipline we will attain, or on the other the natural sciences, and mechanics, architecture for the discipline and the further advantage of having some *practical* knowledge of every day affairs? Will a knowledge of Greek and Latin, or chemistry, botany and geology, best fit a man for a farmer, mechanic or merchant?

Will his ability to conjugate a Greek verb, or properly render a Latin idiom, better enable an architect to plan and execute a tasteful design?

If liberal education is to extend to all classes,—God speed the day when it shall—then must all our colleges institute live courses, which a boy may take without danger of inculcating the idea that his learning fits him for law, or theology, and nothing else.

Facts, we think, will bear us out in the assertion that in Classical institutions, as the student becomes acquainted with the languages spoken in the birth-place of Literature and Art, or the home that sheltered law in its infancy, he comes to conclude that he, too, is destined to become a Horatio or Cicero, or at least that for him to do a little hard, honest work, would dim the lustre of his genius.

Let our colleges teach us that we may become farmers, carpenters, blacksmiths and yet be *men*. These branches of industry will no longer be looked upon with contempt, and men will come to occupy them that will raise them to their proper rank.

In the classical course we study the forms of expression of centuries ago. We are brought face to face with the people of that day, and in so far as we search for the ideas they held, the expression of which is sometimes wonderfully clear and extraordinarily concise, well and good.

But how few, how exceedingly few think of aught but the lumbersome carriage in which the idea is born? On the other hand the scientist is dealing with the thoughts of God. Simply because many scientists discard Christianity as worse than a humbug, as a thing that would, if true, forever be a disgrace to Omnipotence, it has been imputed to this fact, by narrow-minded sectarians that they did not believe in the existence of a God. Whether they believe in a God or not, one thing is certain, the grandest conceptions of life and its relations, the world has ever known have come from these men. In reality, in the majority of cases, is not every hour spent in studying the dead languages, a clear loss of time? Let us once for all bury the dead. Have a grand funeral, oration in Greek, or Latin, and consign to the tomb forever the musty, decayed forms of expression of centuries ago. Let us study *living* subjects. Delve as deep as we choose into the bosom of nature, pluck from her unwilling grasp every secret in our power and go forth as knowing something to tell, rather than being able to tell a great deal that we know nothing about.

In fine let us learn of the God of nature through the medium of science, rather than the Devils of Mythology through the medium of the classics.

AUTUMN.

Summer has gone. The warm days that lingered around the borders of the shade-trees and drove the plow-boy into the cool shadow of their branches, have, like the time in which they existed, been enrolled on the records of the past. The plow-boy has long since issued from beneath his verdant screen, and plow-boy no longer, he engages in other labors brought by the revolution of a milder sun. The verdant screen itself has turned into a golden garment, and decked the trees in glorious apparel for to meet the

coming of another change in the cycle of the seasons. Groves that so lately waved beneath a glossy foliage of green, and joyfully resounded with the songs of birds, are now seemingly desolate. Their foliage has faded into withered leaves that rustle in the autumn wind, and the little birds that sang among their branches, have left the naked woodlands and emigrated to their summer homes. Along the lanes the smaller forms of vegetation look dry and withered, and in the fields the ripened corn awaits the coming of the reaper. Squirrels peep from holes in the aged oak, and scamper around among the limbs in search of acorns for their winter store; and the timid quail, that during the long evenings called out in its peculiar way from an isolated position on some lonely fence, now chirps around in groups, and seems to anticipate the winter that is coming on. Everything dons the aspect of autumn. The preceding season has expired, and products of the Summer's toil are housed for future use. Fruits of Summer's ripening are gathered, and grain matured by Summer's sun is garnered in the bin. The day of cultivation is past; the harvest hours are nearly gone and the time is rapidly approaching when Winter's icy hand will freeze the current of toil, and the laborer may enjoy the fruits of his efforts in the comfortable presence of a winter's fire.

We ourselves are living in the summer of our own existence. Around us are growing the various forms of intellectual life, and like fields of grain, they flourish or decay according to the attention they receive. The days of cultivation are passing, as they have passed in the growing season of the vegetable world: and the autumn of our earthly career is coming to bear the results of our toil. Efforts that made the fields to bloom, have been rewarded with a bountiful harvest; and those who put forth the efforts can reap the harvest, and rest contented in the chill-days when the bloom is o'er. So it is with us; if our endeavors are properly directed and we watch with tender care over the germs of our knowledge; if our exertions to seek the truth are unfailing, and we cultivate the eminations that arise from it with a persistence that knows no flagging, then shall the tendrils that we have fostered develop into trunks, that will spread their protecting branches above us, and bear us a harvest of golden fruit in the autumn of our lives. Secure in the fortress of our conscience, we may then meet the advance of wintry age, and whether we sojourn with him for a while, or succumb at once to the influence of his icy hand, we need not fear to lie down at the base of the tree we have reared and allow it to stand as a monument for our tomb. Our lives are fashioned by our own hands. We construct our own ships to sail upon the river of time, down into the sea of eternity. If we grasp the helm with a firm hand we may guide our bark safely through the deep channel of wisdom into a harbor of peace; but if we relax our hold and allow ourselves to drift, the counter currents of evil may float us out into the shallow waters of ignorance and wreck us on the shoals of misery. There is no certainty in the eddies of chance—no safety in the dangerous whirlpools of indifference. The husbandman who trusts to unaided nature for his autumn returns, finds in the autumn that his returns are small; and in the cold, dark days that follow, he bitterly repents the course he has taken, when he sees too late the effects of his folly. So in the changing seasons of a lifetime, we can neglect the duties that devolve upon us only at our peril. Turning from them and confiding in fanciful possibilities, we may, when the foliage of our summer is sear, find that the thistles of indolence have grown rank around the plants of our understanding, and that their saprophytic roots still cling to the remnant of our existence. Standing, then, upon the threshold of the last phase in our earthly career, we look back with a sigh through the declining autumn, past the receding summer, and into the far off springtime; and, as the specters of lost opportunities come crowding back to us, remorse envelopes us, and remembrance only brings regret. Thus, truly, "We are the architects of our own fortunes," for—

> The tissue of the life to be,
> We weave with colors all our own,
> And in the field of Destiny
> We reap as we have sown.

SCIENTIFIC.

FILICES IOWENSES.

IDA TWITCHELL.

By the latest classification of plants, the vegetable kingdom is divided into seven grand divisions. Beginning with the lowest they are: Protophyta, Zygosporeæ, Oosporeæ, Carposporeæ, Bryopyta, Pteridophyta and Phanerogamia. The Pteridophyta are subdivided into Equisetinæ, Filicinæ and Lycopodinæ, which are less technically Horsetails, Ferns and Ground Pines. With one subdivision of the second mentioned of these, we have to deal in this paper.

It is inconsistent with the limits of the present article to run through the seven grand divisions of the vegetable world and give the several characters on which classification rests. Suffice to say that, without going into a technical and tedious discussion of Alternation of Generations, Pteridophytes may be separated from Bryophytes or the Liverworts and Mosses by the character of containing woody tissue. They comprise the group once known as Vascular Cryptogams. On the other hand, Pteridophytes are separated from Phanerogams by being destitute of real flowers and bearing minute, one-celled bodies, called spores, instead of seeds.

Passing into the group itself, the Ferns and their allies (*Filicinæ*) may be separated from the Horsetails by their leafy character, and from the Ground Pines by bearing their spore cases on the single leaf rather than in the axils of the upper leaves of the many-leaved plant.

Having now very hastily surveyed plants in general and set the boundary stakes of the class, I will take up the parts of the Fern.

The expanded portion, generally called the leaf or leaves, is by botanical nomenclature known as the *frond*. The stalk is properly the *stipe*. The underground part, in our species, is usually a prostrate root-stock bearing the scars of older leaves. The black or brown bodies, which appear as dots to the naked eye, on the veins of the under side of the leaf are groups of one-celled organs called *sporangia*, the whole group is a *sorus*; the sporangia burst at maturity, discharging the minute, generally roughened spores. The sporangium, in all our true ferns but one, is provided with a peculiar chain of thick-walled cells, which extends nearly around it and by straightening ruptures the cell wall.

Until a comparatively recent time, the fructification of the fern was a profound mystery. So mysterious was it, that all sorts of strange ideas were held in that ever superstitious time when dainty Ariel offered

> —"to fly,
> To swim, to dive into the fire, to ride
> On the curl'd clouds;"

or Puck used to such effect his magical ointment on the eyes of the sleepers in the Athenian wood. It was once supposed that a person fortunate enough to possess fern seeds, could make himself as invisible as they. We are told that Tragus spread fine linen cloths to catch the seeds on the eve of midsummer night. In 1669, W. Cole discovered the spores. The method of fertilization was yet for many years unknown and the region of the plant on which the fruit is borne, was searched eagerly for the little glands which were supposed to answer the purpose of anthers; finally in 1844 the reproductive organs were discovered by Suminski.

Paraphyses are undeveloped sporangia which are found, of one form or another in company with the normally developed spore cases and are said to be useful in keeping the sporangia moist.

The sporangia of a sorus are usually protected, either by a modified or unmodified portion of the frond, as the turned down edge of the *Pteris*, or by a special membranous outgrowth, in either case called the *indusium*. The distinctions *pinna* and *pinnule* as in an ordinary leaf, mean primary and secondary divisions. All true ferns are characterized by being circinate or rolled up in the bud.

Before taking up the classification, in order to have the whole matter roughly before us, I will briefly run over the life history of the Filicinæ.

The contents of the sporangia are one celled spores generally possessing two coats, the outer roughened or papillose. These falling to the ground, send out roots and finally, by cell division and growth become flat, cellular bodies called the prothallia. This constitutes the sexual generation of the plant, oophore; each bears on the under side near each other the *archegonia* and *antheridea*. (These bodies in some species are found on separate prothallia.) After fertilization the archegonium sends up the fern, so-called, which we see and admire. This, in the life history of the plant, is its asexual generation called technically *sporophore* and bears in its turn the spores, which, falling to the earth, give rise to new prothallia, and so on.

The order *Filices*, or true ferns, although represented in our state in general by insignificant species as to size and beauty, is sufficiently so that the characters of the order may be quite thoroughly studied from a scientific standpoint. Before proceeding with the classification of our Iowa ferns, I would state that I have at my command the college herbarium and have described all the Iowa species found therein. There may be other species found within the borders of the state, and anyone who will send specimens growing in the state and not described in this paper, to the College Herbarium will, in that much, benefit the scientific world.

Below I give a part of the classification of Pteridophytes given in Professor Bessey's Botany.

- Equisetinæ
- Filicinæ
  - Isosporeæ
    - Filices
      - Gleicheniaceæ
      - Hymenophyllaceæ
      - Cyatheaceæ
      - Polypodiaceæ
      - Osmundaceæ
      - Schizæaceæ
    - Marattiaceæ
    - Ophioglossaceæ
  - Heterosporeæ
    - Rhizocarpeæ
- Lycopdinæ

Of the six sub-orders of Filices—the true ferns—we have represented in our state only two, the *Polypodiaceae* and *Osmundaceae*.

The following key may be useful in classifying Iowa ferns. For the characters of the sub-orders I am indebted to Thistleton Dyer's article on ferns, in the new Encyclopedia Britannica. The tribe and genus divisions are taken from Professor Eaton's classification found in Gray's Manual.

KEY TO FILICES IOWENSES.

Order **FILICES.** (*True Ferns.*)

Leaves without stipular appendages, sporangia epidermal, containing spores of one kind, developed in each from a single primary mother cell.

Sub-order 1. **Polypodiaceaæ.**

Sporangia stalked, splitting transversely, furnished with a usually incomplete vertical ring.

Tribe I. POLYPODIEÆ.

Roundish or elongated fruit dots placed on the veins or at the ends of the veins on the back of the frond. No indusium. Stipes articulated to the root-stock. Veins free.

Genus I. POLYPODIUM, L. Polypody.

Sori round, in one or more rows each side of the mid-rib or of the segments of the frond. Root-stock creeping, often scaly.

Species 1,* *Vulgare*, L.

Fronds evergreen, oblong, smooth both sides, 4—10 in. high, simply and deeply pinnatifid; the divisions linear-oblong, obtuse or somewhat acute, remotely and obscurely toothed; veins once or twice forked; fruit dots large, midway between the midrib and margin. Rocks; July. Cliffs of Des Moines river and other streams of the state.

Figure I. Cross section of sorus of *P. vulgare*, showing sporangia and paraphyses.

Tribe II. PTERIDEÆ.

Fructification marginal or intra-marginal; provided with a general indusium formed of the altered or unchanged margin of the

*The species *P. incanum*, Swartz, may possibly be found in S. E. Iowa. It has evergreen coriaceous fronds, oblong, 2-6 in. high. Grayish and scurfy underneath; simply pinnatifid, the divisions oblong-linear, obtuse. Fruit dots small, near the margins. Rocks and stumps of trees.

frond. Stipes not articulated to the root-stock. Veins free in all our species.

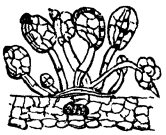

FIG. 1.

A. Sporangia at the ends of the veins, borne on a reflexed marginal portion of the lobes of pinnules

Genus II. ADIANTUM L. Maidenhair.

Midrib of the pinnules on the lower margin or none. Stipe black and polished. Sporangia attached to the approximated tips of the free-forking veins.

Species I. *Pedatum*, L.

Black wiry stipe 9-15 in. high, divided near the top into two recurved main divisions, both of which bear on their upper sides several gracefully curved pinnæ, which in turn give rise to numerous one sided pinnules. From the main rib at the lower margin all the veins arise. The upper margin of the pinnule is cleft and fruit bearing. Our most beautiful fern, growing everywhere in moist, rich, deeply shaded places.

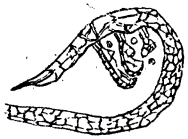

FIG. 2.

Figure II. Cross section of fertile margin of pinnule of *A. pedatum* showing sporangia and indusium formed of reflexed margin of a fertile lobe.

B. Sporangia borne on a continuous, marginal, vein-like receptacle which connects the apices of the veins and is covered by a delicate, whitish indusium formed of the reflexed margin of the pinnule.

Genus III. PTERIS, L. Brake.

Fruit occupying the entire margin of the fertile frond. Midrib of the pinnule central. Stipe light colored.

Species I. *aquilina* L.

The stout stipe is divided at its summit into three widely diverging branches which gives the dull green frond a triangular appearance. Branches twice pinnate; pinnules oblong lanceolate; upper undivided; lower more or less pinnatifid, with oblong obtuse lobes, margined all around with the indusium. This is a large, vigorous fern, quite common in thickets and open ground.

Figure III. Cross section of margin of *P. aquilina* showing delicate indusium, cross section of leaf, sporangia and paraphyses.

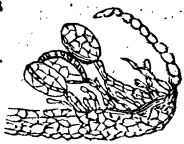

FIG. 3.

C. Sporangia at or near the ends of the unconnected veins, on the under surface of the frond. Indusium various.

Genus IV. *Cheilanthes*, Swartz. Lip-Fern.

Sori minute at the ends of free veins, nearly contiguous; nearly or quite continuous indusium formed of the reflexed margin of separate lobes around the entire pinnule. Low, generally 2-3 pinnate ferns with hairy fronds. Stipes polished, brown or black.

Species I. *lanuginosa*, Nutt.

Stipes slender, at first hairy; fronds 3-6 in. high, ovate-lanceolate, woolly with soft whitish hairs, becoming smoother above, twice or thrice pinnate; the ovate pinnæ 5-6 in. long, lowest distant, others contiguous; pinnules crenately pinnatifid or mostly divided into roundish, densely crowded segments; the indusium formed of the herbaceous margin, recurved almost continuously around the entire pinnule. Dry rocks and cliffs. This little fern has been found at Dubuque and in Winneshiek County.

FIG. 4.

Figure IV. Pinna of *C. lanuginosa*, natural size.

Genus V. PELLÆA, Link. Cliff Brake.

Elongated sori distinct while young, forming later an almost continuous marginal band, borne on the upper part of free veins and covered by the continuously reflexed, altered margin of the pinnule. Small, ferns with 1—3 pinnate fronds; the sterile frond rather broader than the fertile.

Species I. *gracilis*. Hook.

Fronds 3-6 in. high, slender, smooth and delicate; lower pinnæ once or twice pinnately parted into 3-5 decurrent divisions, those of the fertile frond entire or very sparingly incised, linear-oblong, veins mostly only once forked. Stipes light brown, shining. Shaded limestone cliffs, rare. We have a specimen from Winneshiek County.

Figure V. Cross section of fertile margin of *P. gracilis*, showing delicate indusium, sporangia and somewhat triangular spores. FIG. 5.

Species II. *atropurpurea*, Link.

6-15 in. high. Dull green, leathery frond once pinnate above, generally twice below; the divisions oblong, those of sterile fronds heart-shaped at the stalked base; fertile, truncate. Stipes dark brownish purple, smooth and polished excepting at the base, where we find some long yellow hairs. Dry limestone cliffs, common on rocks of all our eastern streams. Fort Dodge; Des Moines.

Figure VI. Portion of edge of a pinna of *P. atropurpurea* magnified, showing sporangia and indusium.

FIG. 6.

Tribe III. *ASPLENIEÆ*.

Elongated sori one or both sides of the veins, covered by a special indusium which is attached by one side to the fertile vein, and is free on the other. Stipes not articulated to the root-stock.

A. Sori linear or oblong, borne on veins oblique to the midrib.

Genus VI. ASPLENIUM L. Spleenwort.

Sori on the upper side of the fertile veinlet, covered by the straight or slightly curved membranous indusium, which is fixed lengthwise by one edge to the upper side of the fertile veinlet, and is free at the other.

Species I. *Filix—fœmina*, Bernh.

Broadly lanceolate or ovate-oblong fronds 2°-3° high, twice pinnate, pinnæ lanceolate; numerous pinnules not cut quite down to the secondary rhachis, oblong, doubly and sharply serrate. Fruit dots short, at length confluent; indusium bluntly toothed on the margin. Moist woods. Ours is probably *var. angustum*, Willd., which is a narrower form. Found in central Iowa, in moist woods.

Figure VII. Cross section of sorus of *A. Filix-fœmina*.

B. Sori borne on veins partly oblique, partly parallel to the midrib.

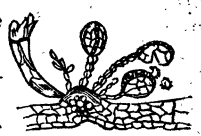

FIG. 7.

Genus VII. CAMPTOSORUS, Link.

Fruit dots oblong or linear, irregularly scattered on either side of the reticulated veins of the simple frond. Tending to approximate in pairs or become joined at their ends.

Species I. *rhizophyllus* Link. Walking Leaf Fern.

Evergreen, tufted fronds lanceolate, from an auricled or heart-shaped base. The slender tip bends down and rooting gives rise to a new plant, from this the common name—Walking-Leaf. Shaded calcareous rocks, rare. Found on the cliffs of the Des Moines river. Near Ackley.

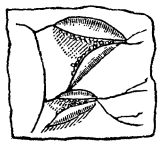

Figure VIII. Magnified portion of frond of *C. rhizophyllus* showing position of sori with respect to the veins.

FIG. 8.

Tribe IV. ASPIDIEÆ.

Sori round or roundish on the back or at the apex of the fertile vein. Special indusidum. Stipes not articulated to the rootstock.

A. Indusium evident, round or roundish covering the sporangia, at least when young, Sterile and fertile fronds nearly alike.

Genus VIII. ASPIDIUM, Swartz. Shield- or Wood-Fern.

Fruit dots generally borne on the back of the veins. The indusium resembles a shield and is either round or kidney-shaped, is attached either at the center or at the sinus and opens around the edge.

Species I. *Thelypteris*, Swartz.

Veins straight, simple or simply forked. Fronds lanceolate in outline, pinnate, pinnæ nearly or quite horizontal. Lobes oblong, entire, with deeply revolute margins. Veins generally forked, bearing the soon confluent fruit dots near their middle. 1°-2° tall, Marshes. Found in Winneshiek County.

Figure IX. Indusium of *A. Thelypteris*, showing its position on the vein, magnified.

Genus IX. CYSTOPTERIS, Bernhardi. Bladder Fern. Indusium convex, fixed by a

broad base under the sorus, thrown back as the fruit ripens. Fruit dots roundish, borne on the back of free veins. Inflated indusium attached by a broad base to the side next the midrib, partly beneath the fruit dot, soon free at the opposite end by a jagged edge.

FIG. 9.

Species I. *bulbifera*, Bernh. This fragile fern has tall, lanceolate, twice pinnate fronds. Pinnæ lance-oblong. Pinnules crowded. Indusium truncate on the free end. Several little bulblets are found beneath the pinnæ and rhachis which will enable the fern gatherer to recognize the species. Found in shaded, damp places. Found at Charles City and in Winneshiek County.

FIG. 10.

Figure X. Closed indusium of *C. bulbifera*, and same reflexed.

Species II. *fragilis*, Bernh. This pretty little fern is common everywhere in rich, shaded soil. Its frond is 3-8 in. high, twice or thrice pinnate; Pinnæ and pinnules are lance-ovate in outline and are not cut quite down to the rhachis. Free end of indusium, tapering.

Figure XI. Closed indusium of *C. fragilis*; and same reflexed.

B. Indusium obscure; irregularly semicircular. Fertile fronds so contracted as to be totally unlike the sterile in appearance.

FIG. 11.

Genus. X. ONOCLEA, L.

Fertile frond once or twice pinnate, much contracted. Fruit dots one on the middle of each strong and primary vein.

Species I, *Struthiopteris*. Hoffman. Ostrich Fern, (*Struthiopteris Germanica*, Willd. Gray's Manual, pp. 667.) Fertile frond simply pinnate, the pinnæ rolled up enclosing the fruit in a hollow, somewhat moniliform body; each primary vein bears three to five veinlets each bearing a sorus near its middle. Sterile frond larger and free-veined, broadly lanceolate, deeply pinnatifid, pinnæ numerous. This species is quite common and may be easily recognized by the peculiar form of its fertile frond.

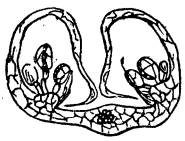

FIG. 12.

Figure XII. Cross section of fertile pinna of *O. Struthiopteris*, showing arrangement of the veins, sporangia and delicate indusium.

Species II. *sensibilis* L. Sensitive Fern.

Fertile frond much contracted, twice pinnatifid, the pinnæ rolled up into globular bodies which enclose the sporangia. Indusium thin, fixed by its lower side, free above. The sterile frond, which is shaped like an oak leaf, is delicately reticulate veined, margins of pinnules wavy or the lower ones toothed.

This species is found in damp places, near the banks of streams. Is found in northwestern Iowa. Winneshiek County, and near Ames.

FigureXIII. Cross section of sorus of *O. sensibilis*.

C. Indusium placed beneath the sori, round or star-shaped, bursting irregularly from the top.

FIG. 13.

Genus XII. WOODSIA, R. Brown.

Round fruit dots borne on the back of simply forked veins. The indusium at first encloses the fruit, but finally bursts irregularly into jagged lobes.

Species I. *obtusa*, Torr.

Frond broadly lanceolate, 6—12 in. high, once or twice pinnate. Entire plant glandular hairy; veins forked, bearing fruit dots on or below the minutely toothed lobes of the obtuse pinnæ. This species closely resembles *Cystopteris fragilis*, but may easily be distinguished by its glandular appearance. Common on rocky cliffs.

Figure XIV. Cross section of sorus of *W. obtusa*, showing sporangia, indusium, spores and glandular hairs.

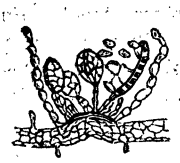

FIG. 14.

Suborder II. **Osmundaceæ**. Sporangia stalked, splitting vertically, only a faint horizontal bar instead of a ring.

Genus XII. OSMUNDA, L. Flowering Fern.

Fertile pinnæ and sterile borne on the same stalk. Fertile much contracted bearing the large, short pedicelled sporangia upon the margin of the very narrow segments; veins free. Sporangia without indusium, round, opening by a vertical slit.

Species I. *Claytoniana* L.

2-3 in. high; clothed with loose wool when young, smooth when old; pinnæ lance-oblong, with oblong, obtuse divisions. Sporangia greenish, turning brown. Low grounds.

Figure XV. Open and closed sporangia, of *O. Claytoniana.*

FIG. 15.

To make the subject more complete, I will describe in this article *Botrychium virginicum* which, although popularly known as "a fern" does not belong to the order of true ferns (*Filices*) but to the order *Ophioglossaceae* which is thus characterized: Sporangia spiked, destitute of a ring, naked, coriaceous and opaque, not reticulated, opening by a transverse slit into two valves discharging very copious powdery spores. Fronds not circinate in the bud.

Genus I. BOTRYCHIUM, Swartz.

Rootstock short, erect; frond with an anterior fertile and posterior sterile segment, the former 1-3 pinnate, divisions contracted bearing a double row of sessile, naked sporangia. Sporangia ringless, globular, opening transversely by two valves. Sterile segment ternately or pinnately divided or compounded. Spores sulphur colored.

Species I. *virginicum*, Swartz.

Thin, broadly triangular, sterile segment sessile above the middle of the stalk on which both sterile and fertile segments are borne. The short stalked primary divisions once or twice pinnate and then once or twice pinnatifid. Fertile part 2-3 pinnate Plant 1°-2° high. Common in rich woods. Winneshiek, Dallas and Story Counties.

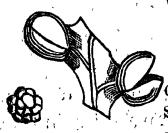

FIG. 16.

Plate XVI. Closed and opened sporangia, and spore of *B. Virginicun*, spore much more highly magnified than sporangia.

THE AURORA.

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INAUGURAL.—We are sorry to inform our readers, that with the last No. of the AURORA the labors of Mr. Saylor, as Editor in-chief, have ceased. This follows from his having left the institution. and not from a lack of interest in the paper, nor from disloyalty to the journalistic fraternity. It is not for us to laud him for his efficient labor in behalf of the AURORA, because that is so well known and appreciated by our students, as to need no comment. In assuming the responsibilities of the position, we are conscious that many arduous duties are to be performed. and were it not for a firm reliance in the ability and co-operation of our assistant editors, we would hesitate in such an undertaking. We now step into the shoes vacated by Mr. Saylor, and while we cannot hope to *fill* them, if we are but able to keep them on, and watch closely the direction which the force of habit will naturally lead them, we predict that success will inevitably follow, and the even tenor of THE AURORA maintain its equilibrium as before.

DECORUM.—In the enlightenment of the nineteenth century; in the midst of civilization and learning, we are sorry that we are called upon to notice by way of chastisement, the conduct of a student of our institution, or of anyone who may enter our college chapel on a public occasion under the pretense of a desire to learn and become wiser. On the evening of October 9th, our students were unusually favored by a lecture from Geo. R. Wendling, on his 'Problem of the Ages, or, If a Man die shall He live Again." This lecture is so well known by most of our readers, and its superiority so well established, that many comments from us would seem uncalled for; suffice to say that the lecture is of the highest type, and that for deep logic and forcibleness of diction, it surpasses any thing it has been our pleasure to listen to. Our students were deeply interested in the lecture, and it appalls us to learn that no less than twenty-five or thirty of them, including a few visitors, were so interrupted by the whispering and snickering of some two or three couples that they were unable to derive any benefit from it whatever. Would that we were able to say that our students were wholly exempt from such disgrace. But not so; one or two of them thus condescended to belittle themselves. If this had come from youngsters of twelve to fourteen from the back-woods of Indiana, we might find an excuse for them; but coming as it did from those of maturer years, we seek in vain throughout the whole catalogue of excuses, to find one to justify such brazen-faced actions— a thing so obnoxious as to meet the contempt and scorn of an enlightened intelligence.

If there is any one among us who does not *know how* to behave, better that he were home with his mother, and if there are any who *do* know how and will not behave, the Reform school is the place for them and not the Iowa Agricultural College. We are sure that we speak the sentiments of the lecture committee when we say that to all is given a cordial invitation to attend our lectures and derive benefit therefrom, but to any who cannot conduct themselves with decorum, we ask that they stay away.

THE AURORA AND COLLEGE.—It has been the constant and untiring effort of the respective editors of the AURORA, to make it a sheet well worthy the patronage and support of the students.

The literary, scientific and local departments have kept their respective columns filled with such material as would be interesting and instructive to all who might give them a careful perusal; while the Editor-in-chief has been mindful of the interests of the paper, and has worked zealously to place it on an equal footing with our collegiate exchanges.

To these ends they have labored and we will let our reader judge as to the success they have attained. Each has his respective duty to perform, and we believe it to be our bounden duty, as Editor-in-chief, to express freely and frankly our views upon any subject pertaining to the AURORA or the interests of the students connected with this institution.

Now it is not our province to dictate to college authorities, nor would we consider it proper to even throw out a suggestion upon the management of affairs that do not concern us as students; but upon a subject in which our interests are so intimately bound as they are in our college courses of study, we think it right and proper to say a word or two. There is no student who is not more or less interested in this subject. It has been discussed in our literary societies, and has been a topic for warm debate among our students. We think it would be difficult to find a student without a fixed opinion respecting it. The question is this, should we not have a more liberal course of study?

This interrogatory naturally involves several other questions, before it can be properly answered. 1st. Does the organic law prevent it? 2nd. Whould it not be in harmony with the best interests of the institution? 3rd. Has the institution facilities for carrying out a more extensive or liberal course? 4th. Is there a demand on the part of the students for the same?

An extract from the organic law will answer the first: "The leading object shall be, without excluding other *scientific* and *classical* studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts,

in such manner as the legislature of the state may prescribe, in order to promote the *liberal* and practical education of the industrial classes in the several pursuits of life." As to the second question, we cannot see wherein it would not be for the interests of the institution. All who desire an education in the "Course relating to agriculture," will come here for it, and if the institution meets the demands of all such students, it is doing all that could be expected of it in that line. In regard to our *facilities*, we can say that there are comparatively few colleges so well endowed and stand on such a substantial financial basis as our own,—certainly the facilities are all that could be asked for. But, lastly and above all, is there a demand by the student for a more "*liberal*" education? We think there is. Not unfrequently do we hear the following: I am pursuing this study simply to *pass* it. It is a study that I care nothing about. I am getting neither discipline nor general knowledge from it, and feel that it is time almost thrown away. Now we ask if this is not a sad state of affairs. We think that we would be safe in saying, that a majority of the students in this college desire elective studies. For those desiring a technical education in mechanics and civil engineering, probably the course could not be bettered. But for those feeling the need of a *liberal* education, we think the course quite inadequate. Why should I be obliged to pursue a study that I am confident will not give me *value* received.

If there were several elective studies in connection with the "Agricultural course," we think it would then meet the demands of all who desire a scientific education. Our graduates would leave the institution, feeling better satisfied, and we think better qualified to meet the stern realities of life.

DELINQUENTS.—It seems to be necessary for us to give some of our delinquents a "friendly call" for the purpose of discussing the question of *finance*. There will be but one more issue of the AURORA this year, and the board of directors are exceedingly anxious that all outstanding accounts will be settled before the publication of the next number of the AURORA, so that the books may be "squared up" and make a good showing for the incoming board. We hope a prompt response will be made to this call.

LOCAL.

—F. E. Furry has been manufacturing nitro-glycerine.

—A good supply of coal is being laid in for fall and spring use.

—Court-plaster and arnica have risen to par on account of the revival of foot-ball.

—Fires have been started in the little heater at the propagating house—a sure sign of approaching winter.

—Unfrizzed hair and conseqently much lamentation among the ladies follows the absence of gas, in the morning.

—Mr. Allen of the Freshman class, has organized several classes in short-hand. The boys are making very respectable progress.

—It is uncommon for a person to feel happy when he is sad, but a certain Junior can testify that there is no sadness in be-Reeve-ment.

—There is a certain young lady in school who has a habit whenever a gentleman speaks to her, of turning around and bidding him "Hop."

—The latest novelty is a grape picker invented by Mr. Merrill; he claims great merit for it; for further particulars inquire at his office.

—Many of our best students have gone home, most of them to return next year. Among the number are Miss Henry, Miss Howard and Mr. Wallace.

—The subjects which come before the attention of the faculty are continually getting sweeter; first it was crackers, then grapes, and now it is honey.

—The new Botanical and Veterinary building is nearly enclosed. It will be a fine structure, adding much to the appearance of the college grounds.

—Wendling's lecture on Saturday evening proved a success, both financially and otherwise. The Lecture Association came out about $25 ahead and with the aid of another similar success might be able to furnish a free lecture at commencement.

—The fancy muslin sign which appeared above the exhibit of the "Department of Domestic Economy," at the fair, now adorns the room of a relic-loving Junior.

—A latch for the Cliolian door is the latest improvement, for it will enable the Clios to keep closed doors without the aid of a member specially detailed for that purpose.

—There are several new pieces of apparatus in the physical laboratory, which, with old experiments makes a visit to the class in electricity particularly interesting.

—Wonder what causes the great demand for pennies? If it wasn't that it is perfectly preposterous to think of such a thing, we should imagine that some of the boys matched pennies.

—"Don't go near that bicycle, boys," is the advice of a once ambitious Junior. He borrowed it the other day and attempted to ride it, when it ran away with him. Damages $1.25, a bumped head and no sympathy.

—Monday, October, 11th, will ever be remembered in this institution as "the starving time;" one table became so desperate that they prepared to cast lots to see who should be sacrificed for the sake of the others.

—It was worth one of U. Sam's best gold dollars to see that indescribable look on the face of our literary editor, as he attempted to throw a glass of water through the window pane in the place where the screen used to be.

—Three Juniors were left in the dissecting room, by their Prof. to study the skeleton of a frog. As soon as the Prof. was gone they took a small nap all around, at the same time, but awoke up in season to tell two or three stories apiece before chapel.

—One of the members of the choir, in order to have her presence more highly appreciated, left for a few days. Upon returning, feeling that she was not welcomed as she should be, cried out "kill the prodigal, the calf has returned." and it was fully believed by the audience who heard her sing.

—Sunday students were describing their method of crossing the railway bridge between here and Ames, when one of their number said that half the time he went over on one foot. "Why," said another, "you must have hopped; I should think you would have fallen through." "Oh! I went half the time on the other foot," said he.

—The musical entertainment given on Saturday afternoon, Oct., 2nd., by Miss Athearn's music class assisted by the orchestra was a success. Credit is certainly due Miss Athearn for the interest she has thus shown in her pupils' progress. This is the first entertainment of the kind given here but we hope it will not be the last.

—A certain Senior is very partial to blue shawls. On an evening not long since, he followed one some distance down the road, leading from the college, but on coming near he found his eyes had deceived him,—probably owing to the fact that luna's rays were not visible that evening. He quietly hastened back to the college, a sadder, if not a wiser man.

—The Seniors this year have but two weeks in which to write their theses, next year only one will be given, and when the poor Kickapoos will write their's, the faculty only knows. As to whether each succeeding class is smarter than the one before it and accordingly needs less time, or knows less and consequently requires less time in which to write it, we are unable to say.

—One of our older students has lately established a reputation for being exceedingly generous and philanthropic. He has for sometime seen the need of a profuse application of boot blacking among some of his fellow students, and not having any patent blacking on hand, set his ingenuity to work and in less than "no time" produced a blacking from tar and sweet oil, which looked nice enough for a king. In a short time nearly every Junior was seen with brush in hand gravitating toward the tar and oil. Thinking the treat was a pure gain, they spread on the composition fast and thick—result stuck-up brushes, bedaubed boots, big laugh, chagrined Juniors.

—The insect collections, both of Mr. Schraeder and the college are now put upon appropriate frames and displayed in the museum; this makes quite an addition to its attractiveness.

—Can any one account for the fact that several of our *very best* young ladies are known to keep a clay pipe in their room and to use it also. The stem, however instead of the bowl, is blackened by constant use.

—Rap, Rap, Rap, go the pipes—two Sophomore ladies rush to their windows each unconscious of the other's presence—faces automatically turn towards the heavens, when a voice from "above" softly whispers,"Meet me at the stairs." The gallant Soph., with eyes sparkling brighter than diamonds, hastens to meet the fair one, when lo and behold! to the great astonishment of said Soph., four outstretched eager hands ready to receive the precious gem, confront him. Oh! my! He looks first at one then the other when his eyes are seen to fall upon the almost microscopic botanical specimen so neatly pressed,—he retreats murmuring, "When shall we three meet again," and now eternal vengeance is sworn upon the head of him who inaugurated the "air line" system.

—The story runs something like this: one of the handsomest Seniors who has formerly been supremely indifferent to the charms of the ladies has repented of the error of his ways and decided to take a "special." Nature however, apparently disapproves the plan, for since that resolution, she has furnished only the dampest and darkest days for Saturday nights. Last week said Senior was so anxious as to the probable state of the weather, that he proved a great nuisance to its clerk who concluded that he must receive pay for his services, and accordingly informed the young lady that she owed him 30 cents, that being the actual worth of three hours work at ten cents an hour. Unlike most debts it was easily collected and he received his pay promptly by return of Proctor; somehow or other he doesn't feel very rich over it; we don't see why.

—Either the young gentlemen of the Iowa Agricultural College are very bashful and modest, or her young ladies are dazzlingly beautiful, for it is a fact that the former, rather than gaze directly at the latter, pay 25 cents to take a peep through a large geranium which a certain young gentleman has placed in his window. It is needless to say that it is a profitable business for that young man.

—Some of the boys have instituted a new species of surprise party to which they take not refreshments but blacking brushes; for amusement everyone shines his own boots. If the thus favored inmates offer the least remonstrance to this mode of entertainment, it is in order for everyone to proceed to the cleansing of his hands in said surprised person's wash bowl. We should decide that this modern surprise party is hard on Junior muscle, hard on shoe leather, hard on polish, and not likely to be fully appreciated by the persons surprised.

—The Prof. in Physics was earnestly describing the effects of a certain cyclone, and after telling among other things, how a man was taken up into the air while leading a colt, and how the colt kicked him while they were scrambling around together in the upper elements, he went on to say that one family when they saw the storm coming took the precaution to secure themselves in the cellar.—the heavens were filled with revolving plows, reapers, threshing machines and harrows, and the interstices were crowded with circulating barns, houses and barbed wire fences, while cattle and horses and other light projectiles bumped their heads against the clouds, and were only surpassed in their aerial flight by the dogs and cats that struck off on a tangent to the moon. At this juncture the house was taken from over the folks in the cellar, and they were surprised to see five or six dead hogs come running in upon them. The boys couldn't stand the description any longer, but laughed right out. For an instant the Prof. didn't see what they were laughing at, but recovering himself, he explained that the torrent was such that it not only "run" hogs into the cellar but the greater part of an adjacent hill besides.

CLIPPINGS.

Good nature is more amiable than beauty and more agreeable than wit.

Spots on the sun do not begin to create the disturbance produced by freckles on the daughter.

"Our hearts, our thoughts, our very beings grow tender with age," said the pastor, thoughtfully. True, brother, but how very different it is with chickens.

The London Medical Journals report the case of the daughter of the Mayor of Gramoke, near Bremen, who has slept almost uninterruptedly for six months.

A splendid bronze head, life-size, has been found near Olympia. It is the first specimen of the head of a victor in the Olympian games ever found in perfect preservation. It wears the laurel crown.

A circus manager wanted a new name for his show, and a sophomore collegian suggested, "Monohippic Aggregation" as being good; the circus man had three towns billed before he was informed that "Monohippic" meant "one-horse."

"My dear," said a sentimental maiden to her lover, "of what do the autumnal tints, this glowing baldric of the sky, this blazing garniture of the dying year, remind you?" "Pancakes," he promptly answered. And then he realized for the first time that two hearts did not beat as one.

"Oh, my darling wife," said George the week after his marriage, "If your husband was to die what would you do?" "I don't know, I'm sure George," said the wife reflectively. "I never thought of that; I must look into my 'Book of Etiquette' and read the rules for young widows."

A gentleman not extremely given to piety, was dismayed by being asked to say grace at a strange table. To refuse and explain would be embarassing, to comply would be equally so. He chose the latter. and started off briskly with, "Oh! Lord, bless this table," just there, being unused to the business, he nearly boke down, but by a gigantic effort, pulled through with, "world without end, yours respectfully, Amen."

PERSONAL.

'76. Miss Julia Blodget made college friends a flying visit on her return from Maine.

'81. Mr. A. E. Nash is a thriving farmer "out west," and been elected President of the Horticultural Society, of Dakota Territory.

'81. Miss Mattie Kellogg says, she will be here commencement, unless something happens to prevent—but she fears something will happen.

'80. Mr. Martin concluded that the course at the State University is more nearly what he wants than ours; so leaves the I. A. C. to graduate there next June.

'76. Mr. Lonsdale, whose brother J. D., and sister Mollie, have both attended school here, stopped for a few hours last week. He reports his brother as flourishing finely, as one of the proprietors of the Dale City Woolen Mills.

'81. Mr. Merrill entertained the Political Economy class during two recitations with an excellent essay on "Value;" in which he refutes the definitions of Political Economists generally, and argues that value is an inherent property of matter, comparing it with energy.

'80. Circumstances are such, that Messrs. J. F. Saylor, and W. B. Whitney have decided not to remain and graduate with their class. We are sorry to have them come to this conclusion for they rank among the very best of our students. Mr. M. J. Bailey has been appointed as Editor-in-chief in place of Mr. Saylor.

Mr. Harlow has been called away for several days by the death of his mother.

An interesting "talk," by Professor Beal, on evolution was one of the attractions in Comparative Anatomy last week.

Mrs. H. M. Bell paid her daughter a short visit, not long since; she expresses herself as being much pleased with the institution.

Donald Stanton was on the sick list for several days. But at last accounts was well enough to be cross, so we presume he has entirely recovered.

ALUMNI.

The following are the officers of the ALUMNI for the ensuing year.

'72. J. K. MAGOMBER, President
'76. J. F. HARDIN, Secretary
'78. J. N. MUNCEY, Treasurer
Vice Presidents: '72. J. C. ARTHUR; '73. J. S. LEE; '74. IDA S. NOYES; '75. C. H. LEE; '76. JULIA C. BLODGET; '77. KATE S. CURTIS; '78. RICHARD BURKE; '79. H. OSBORNE.

'75. Miss Ida Sherman is teaching in the high school of Mitchell.

'76. J. J. Fegtly, is now principal of the Farmington high schools.

'79. Louis Manwaring has entered the law department of the University of Wisconsin as senior.

'78. A. E. Griffith has the principalship of the high school of Reynolds, Ill. He will begin his labor Nov. 1st.

'79. J. T. Shearer is teaching school at La-Porte City, Blackhawk Co. Miss Ellen Rice of '78, is principal of the school.

'76. A. E. Hitchcock has located at Mitchell, Dakota Territory, where he is doing a real-estate and insurance agency business together with practicing law.

'76. W. M. James, is keeping books for his uncle in Nebraska. He has been laboring in this capacity for the last two years, but is preparing himself for the law.

'77. Miss Campbell is now assistant in the high school of Cedar Rapids. She leaves Monticello, where she has been engaged as school mistress, for the position at Cedar Rapids.

'76. A. B. Shaw recently took a business trip through the northwestern part of the State. On his way he visited various Alumni. He reports business lively in that part of the state.

'79. James Hyde will assume the duties and responsibilities of school teacher near his home in Harrison Co., for the coming winter. He has been book-keeper for a large firm in Council Bluffs since early in the spring.

'78. Another step—W. K. Robbins has been elected member of the American Association for the Advancement of Science. We never tire of noticing progress on the part of our Alumni.

'77. C. C. Colclo is assistant principal of the schools of Carroll, he says this is his last term of school teaching. The Carrollites have recently built a large and well arranged school house.

'75. T. L. Palmer has left the barb wire business, in Nebraska, for the present, on account of the drouth, and is book-keeping for the contractor of a new railroad running south-west from Carroll.

'78. David McKinnon, with the assistance of his brother, is carrying on a large farm in Buena Vista Co., near Storm Lake. It is his intention to study and practice law sometime in the future.

'73. M. F. Marshall is county surveyor of Marion Co. He has held this position nearly ever since his graduation, and we understand that his services have been frequently engaged by railroad companies as surveying engineer.

'75. C. D. Boardman has located at Odebolt, Sac Co. He has a fine new drug store and also practices medicine. The Odeboltites will do well to call on him for their supply of rhubarb, calomel, etc. Master Boardman is reported as flourishing finely.

'77. There seems to be a growing demand for school teachers from the I. A. C. Both Manchester and Maquoketa send in their bids for the services of Miss Kate Curtis; but rather than see her leave, the Monticello school board raised her wages $10 per month, and she will now remain with them another year.

'74. Miss Kate Tupper has resumed the responsibilities of the Beloit high schools, in Lyon Co. Two years ago she had the principalship of these schools, but the poorness of her health caused her to refuse the position for the following year. She took a tour to Colorado, where she remained a year and in September last returned to Beloit. In connection with her labor as principal of this school, she has organized a successful normal-class, and is doing considerable literary work besides.

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